Spatial Allocation of NEI's Extended Idle Hours Using Rest Areas and Truck Stops

Sonya Lewis-Cheatham, Jin-Sheng Lin and Kristen Stumpf
Virginia Department of Environmental Quality

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Background

- EPA provided 2011 draft estimates of annual extended idling hours in each county.

- EPA's spatial allocation based on long haul truck VMT on rural interstates

- Is the spatial allocation method reasonable for Virginia?

- Option 1 reallocate based on long haul truck VMT on both rural and urban interstates (including state highways)

- Option 2 reallocate based on location of commercial truck stops and state rest areas.
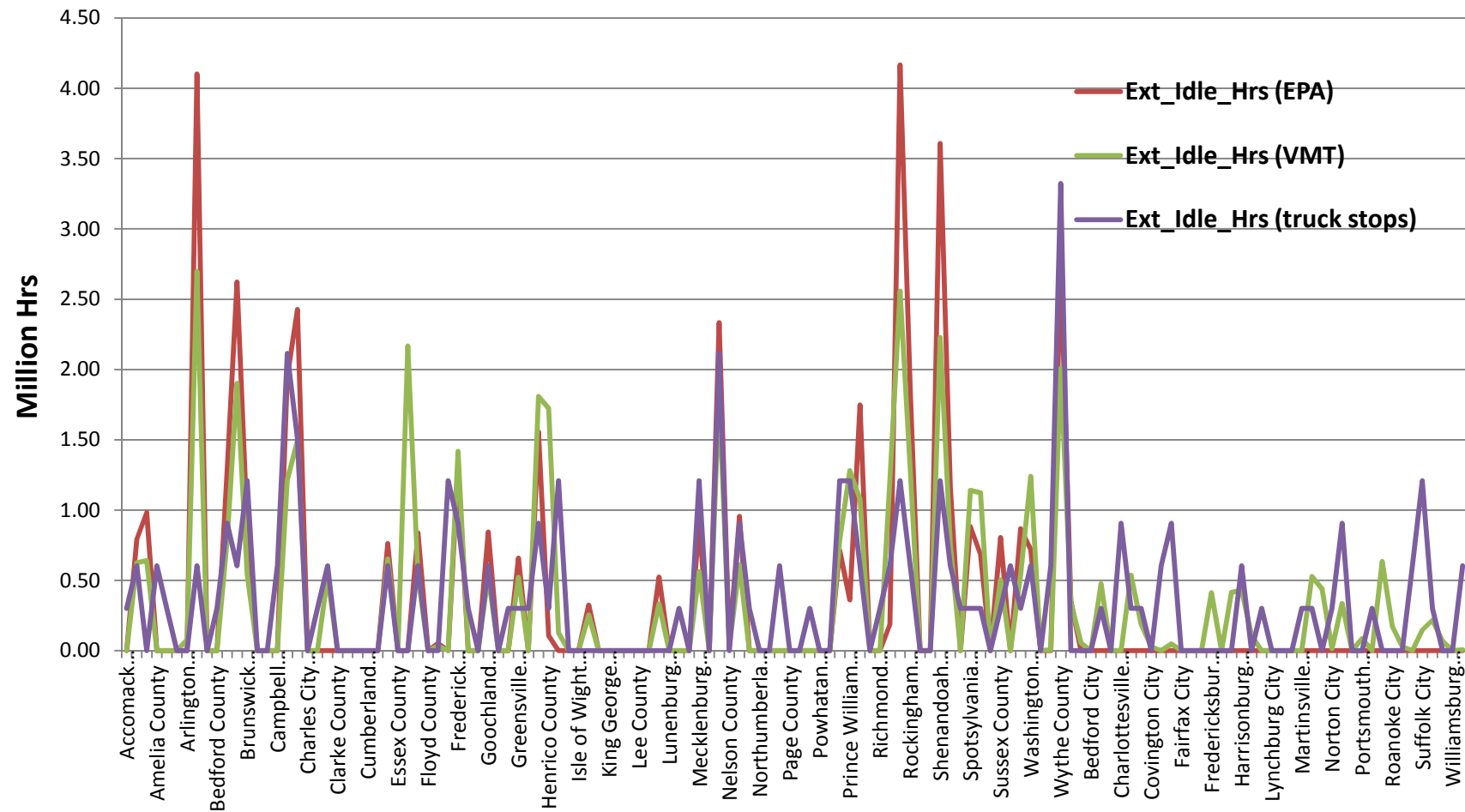
Methodology –
Option 1: VMT- based

- Determine 2011 VMT for long haul trucks (MHDDV and HHDDV) travelling on urban and rural interstates (SCC road type IDs 11 and 23) in each county.

- Develop county allocation factors by dividing the above county VMT by state total VMT for long haul trucks on interstates.

- Use this VMT factor to re-allocate EPA's estimate of annual idling hours in Virginia
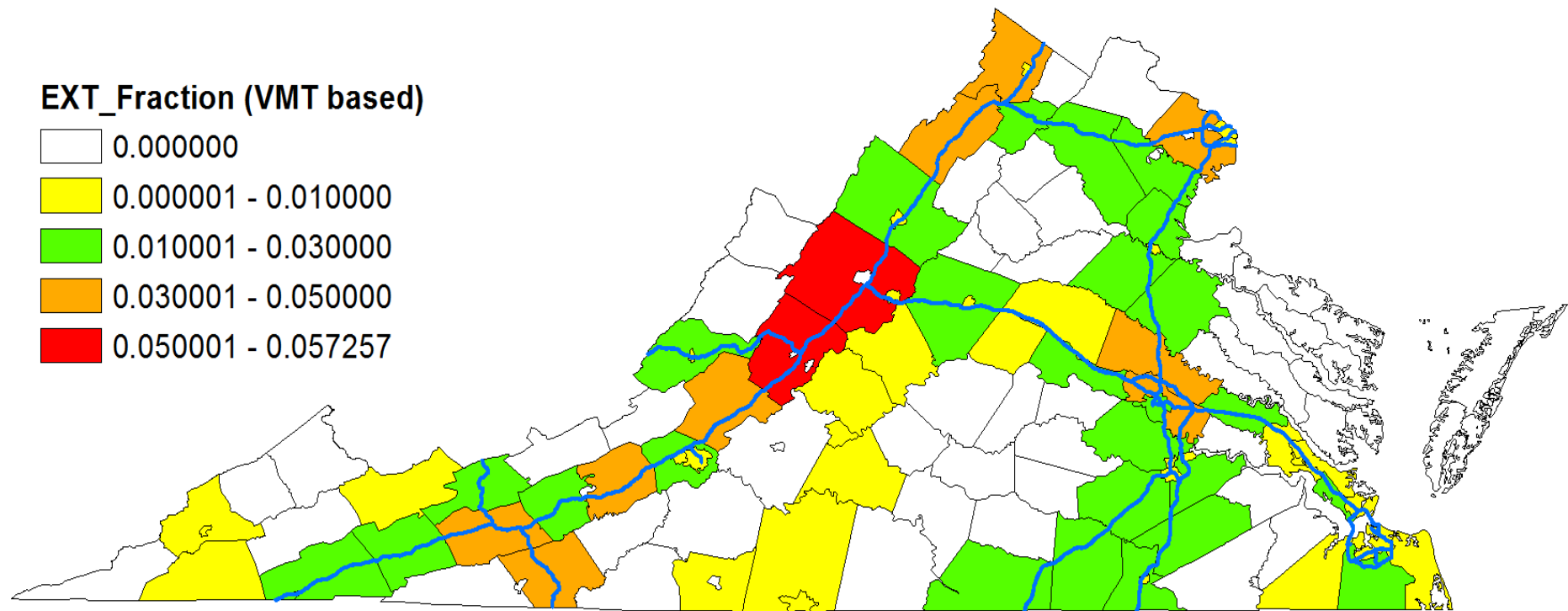
Methodology – Option 2: Truck stop-based

- Determine number of commercial truck stops located in each county (All-Stays data)

- Determine number of state rest areas with truck parking spaces located in each county (VDOT data)

- Combine the data sets to determine number of "likely" extended idling locations in each county

- Develop truck stop factor by dividing number of locations in each county by total number of locations in state

- Use this "truck stop" factor to re-allocate EPA's estimate of annual idling hours in Virginia

Virginia 2011 Extended Idle Hours
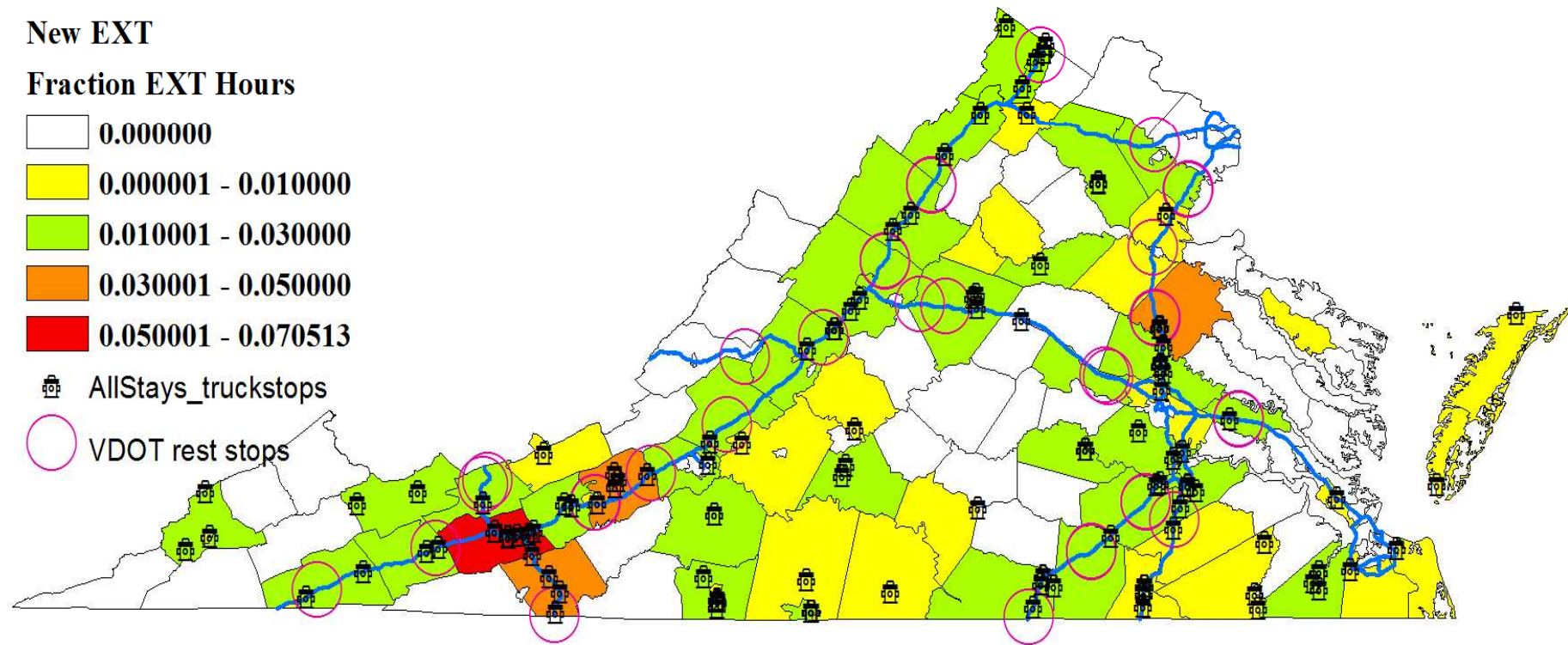
Spatial Allocation of EXT Idle Hours
Option 1: VMT-based

EXT_Fraction (VMT based)

☐	0.000000
☐	0.000001 - 0.010000
☐	0.010001 - 0.030000
☐	0.030001 - 0.050000
☐	0.050001 - 0.057257

Spatial Allocation of EXT Idle Hours Option 2: Truck Stop-based

Final adjusted EXT hours submitted to EPA

New EXT

Fraction EXT Hours

- 0.000000
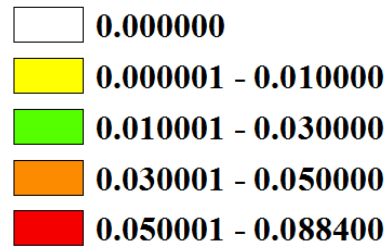- 0.000001 - 0.010000
- 0.010001 - 0.030000
- 0.030001 - 0.050000
- 0.050001 - 0.070513

AllStays_truckstops

VDOT rest stops

VA truck stop-based versus EPA

VA Adjusted EXT

New EXT

Fraction EXT Hours

☐	0.000000
☐	0.000001 – 0.010000
☐	0.010001 – 0.030000
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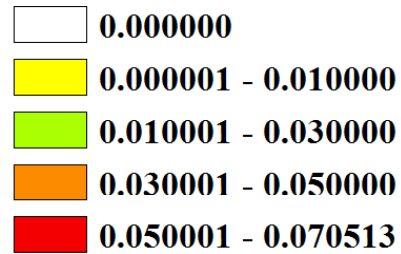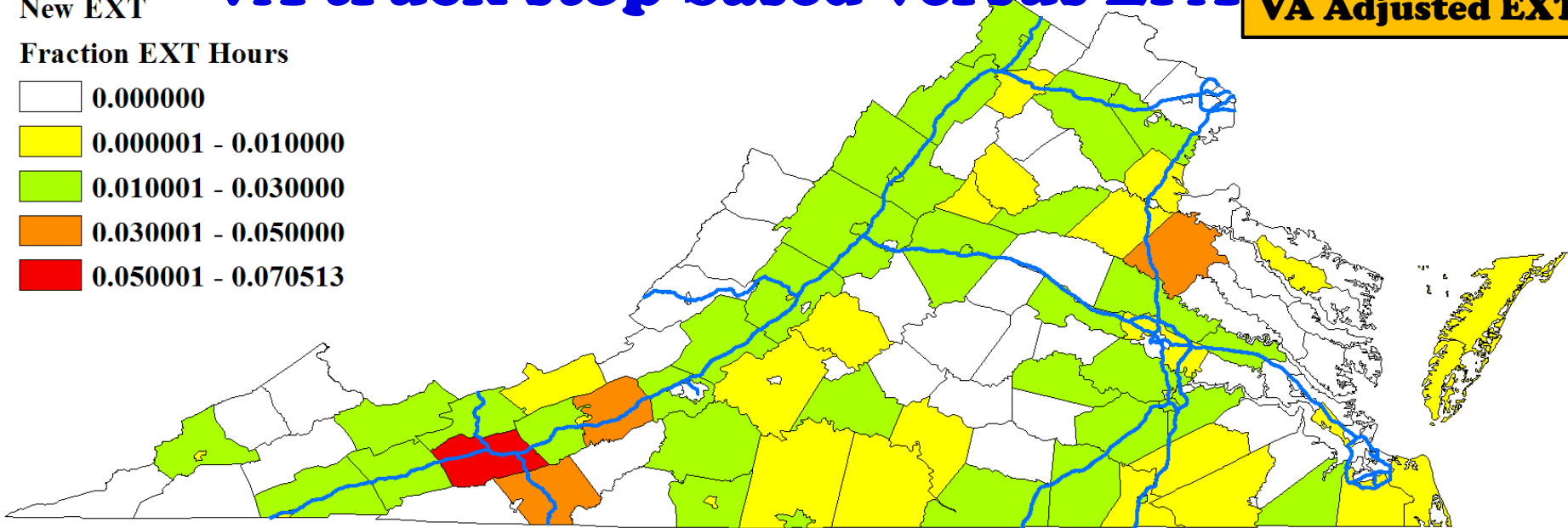
EPA New EXT

EPA 2011NEI

Fraction EXT Hours

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☐	0.010001 – 0.030000
☐	0.030001 – 0.050000
☐	0.050001 – 0.088400

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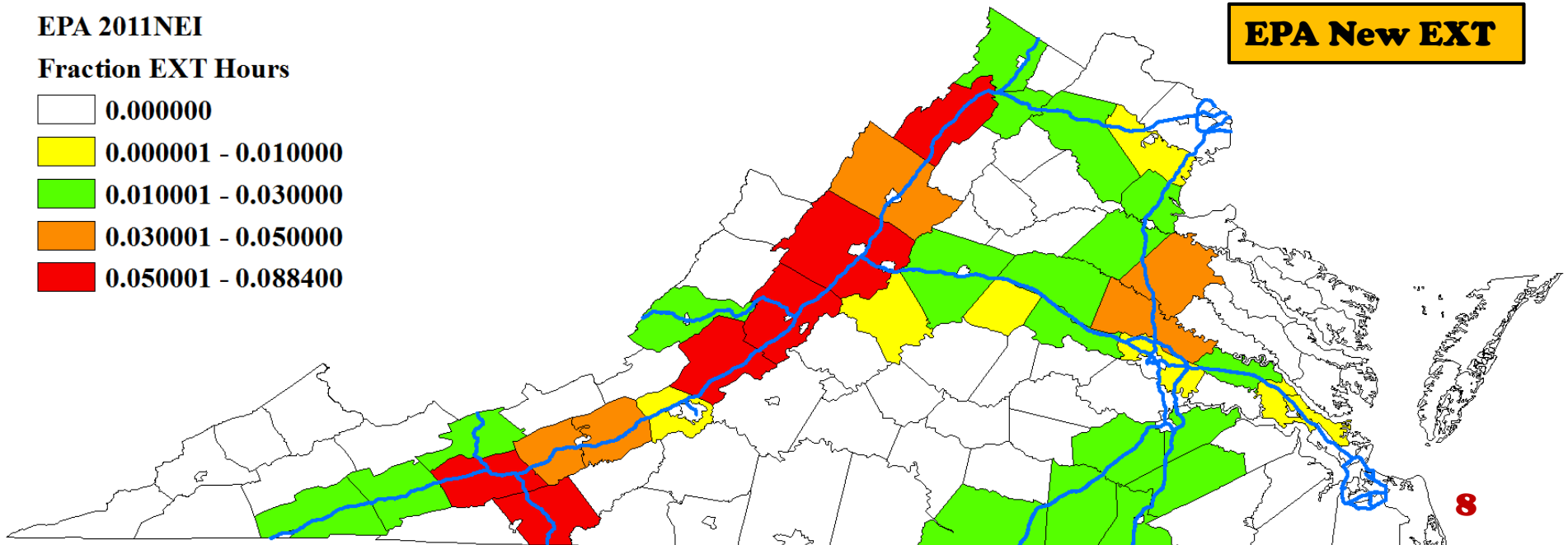
Summary

- **The addition of long haul truck VMT travelling on urban interstates made minimal change to spatial allocation of extended idle emissions**

- **Using location of commercial truck stops and rest areas (with truck parking) created more realistic spatial allocation of extended idle emissions**

Recommendation

■ While surrogates in SMOKE will take care of detailed EXT allocation (to model grid cells where truck stops are located), correct county allocation initially is essential

■ States are encouraged to revise EPA's annual idle hours regardless of deadline